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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/276,376	03/25/99	HUNG H	AM-3245

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EXAMINER	
OLSEN, A	
ART UNIT	**PAPER NUMBER**
1746	9

DATE MAILED: 06/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/276,376	Applicant(s) HUNG ET AL.	
	Examiner Allan W. Olsen	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5-29* is/are rejected.

7)☒ Claim(s) *3 and 4* is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

Response to Amendment

The portion of the amendment filed May 17, 2001, has not been entered. There were directions to "[r]eplace the three paragraphs at page 11, line 22 to page 13, line 22" as well as directions to "[r]eplace the two paragraphs at page 12, line 5 to page 14, line 22". These two amendments address overlapping potions of the specification. Only the later of the above amendment has been entered except it has been entered with the reference to "page 14" having been changed to page 13.

Also, it is apparent , upon looking at the marked-up version of the amended claims, that it was the applicant's intent to cancel claims 5-11. However, as the clean version contained no such instruction, claims 5-11 remain pending. As the subject matter of these claims has been incorporated into claim 1, it is fully expected that these claims will in fact be canceled. Therefore, a number of issues created by the presence of these claims will not be addressed.

Specification

In view of the amendment filed May 17, 2001, the objection to the disclosure is withdrawn.

Withdrawal of Claim Rejections

In view of the amendment filed May 17, 2001:

the rejection of claim 14, under 35 U.S.C. 112, second paragraph, is withdrawn;

the rejection of claims 1-8, 10, 12, 13, 15 and 16, under 35 U.S.C. 102(e) as being anticipated by Armacost is withdrawn;

the rejection of claims 1, 5-9, 12-15 and 17-20, under 35 U.S.C. 102(e) as being anticipated by Imai is withdrawn;

the rejection of claims 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over Imai in view of Wang is withdrawn;
the provisional double patenting rejection of claims 1-13, 14 and 15-20, under 35 U.S.C. 101 as claiming the same invention as that of claims 1-13, 17 and 19-24, respectively, of copending Application No. 09/405,869 is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 2, 5-9, 12-15 and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 5,770,098 issued to Araki et al. (hereinafter Araki).

Araki teaches etching an oxide layer selectively with respect to an underlying nitride layer using a plasma of C_4F_6, C_4F_8 or C_6F_6 in conjunction with Xe that is supplied at a rate 20 times greater than the rate at which the fluorocarbon is supplied. Araki teaches the application of up to 2500 W of RF power to the substrate's supporting electrode. Araki also teaches that various types of plasma reactors can be used including ICP reactors and those with remote plasma generation.

The amendment added the limitation that the etching be carried out with substantially no carbon monoxide. The examiner acknowledges that Araki teaches that benefits may be derived upon the addition of CO. However, Araki also teaches a CO free process to

etch an oxide layer selectively with respect to an underlying nitride layer (see column 6, line 65 – column 7, line 1, and figures 5 and 6)

See: abstract; figures 10-12; col. 4, lines 47-51; col. 5, line 59 – col. 6, line 6; col. 9, lines 16-34.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10, 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki in view of admitted prior art

Claims 10, 11 and 16 are dependent upon claim 1. As noted above, Araki teaches the limitations of claims 1.

Araki does not teach selecting process conditions to produce a 25% process window in the amount of fluorocarbon.

Applicant discusses the industry recognized need to achieving the largest possible process window for the parameters of plasma processes.

As it is obvious to the skilled artisan that the commercial viability of a process is dependent upon the size of the process window it would be obvious optimize the process conditions of Araki to achieve the largest possible process window. As Araki is a 102 rejection over claim 1, Araki is inherently capable of achieving the same process window (e.g. 25%) as the instantly claimed invention and it is well within the artisan's ordinary level of skill to optimize a process.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 21 and 24-28 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 25 and 28-32, respectively, of copending Application No. 09/405,869. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claims 22-23 and 29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 25 and 32 of copending Application No. 09/405,869. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only difference between these claims is that it is required by claims 22-23 and 29 of the instant application, that the claimed etching selectivity to a non-oxide layer be specifically directed to selectivity towards an underlying nitride layer. It would have been obvious to apply the etching technique of claims 25 and 32 in 09/405,689 to an oxide layer having an underlying nitride layer because it is widely known that it is problematic to etch such a structure with sufficient selectivity between the oxide and

nitride and the need to selectively etch a substrate having such a structure is widely appreciated in the art of semiconductor processing.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

Claims 3 and 4 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan W. Olsen whose telephone number is 703 306-9075. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 703 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-3599 for regular communications and 703 305-7719 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

Allan Olsen, Ph.D.
June 7, 2001

RANDY GULAKOWSKI
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